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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/615,726	07/13/2000	Stephen R. Carter	6647-13	4935

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EXAMINER

SPOONER, LAMONT M

ART UNIT	PAPER NUMBER
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2654

DATE MAILED: 01/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/615,726

Applicant(s)

CARTER ET AL.

Examiner

Lamont M Spooner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 July 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2, 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Information Disclosure Statement

1. The references cited on the Information Disclosure Statement (IDS) filed Feb. 12, 2001 (paper No. 3) were not found in the case. Therefore said IDS has not been considered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1- 7, 9-13, 15, 16, 25-27 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Carter et al. (U.S. Patent No. 6,108,619 filed Jul. 2, 1998).

The applied reference has a common assignee and inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As per **claim 1**, Carter et al. discloses a method for determining dominant phrase vectors in a topological vector space (TVS) for a semantic content of a document on a computer system, the method comprising:

accessing dominant phrases for the document (C.4.lines 21, 22), the dominant phrases representing a condensed content for the document (C.3.lines, 49-51, 66, 67);

constructing at least one state vector (C.6.lines 34-36-the defined mapping of the tokens in the TVS which create the profile) in the topological vector space (C.4.lines 4-6) for each dominant phrase using a dictionary and a basis (C.6.lines 46-50); and

collecting the state vectors into the dominant phrase vectors for the document (C.5.lines 44-46 "points within the TVS").

As per **claim 2**, Carter et al. discloses all of the limitations of claim 1, upon which claim 2 depends. Carter et al. further discloses:

accessing dominant phrases includes extracting the dominant phrases from the document using a phrase extractor (C.4.lines 48-50, 57, 58).

As per **claim 3**, Carter et al. discloses all of the limitations of claim 1, upon which claim 3 depends. Carter et al. further discloses:

accessing dominant phrases includes storing the dominant phrases in computer memory accessible by the computer system (C.6.lines 50, 51).

As per **claim 4**, Carter et al. discloses all of the limitations of claim 1, upon which claim 4 depends. Carter et al. further discloses:

forming a semantic abstract (record) comprising the dominant phrase vectors (C.6.line 53).

As per **claim 5 and 10**, Carter et al. discloses a method for determining dominant vectors in a topological vector space or a semantic content of a document on a computer system, the method comprising:

storing the document in computer memory accessible by the computer system (C.2.lines 64-67, C.3.lines 9-14, storing the data/content stream).

extracting words for at least a portion of the document (C.4.lines 48, 49);

constructing a state vector (C.6.line 36) in the topological vector space for each word using a dictionary and a basis (C.6.lines 46-50);

filtering the state vectors into the dominant vectors for the document (C.5.lines 19-24 "qualifying criteria for the creation of" the semantic records).

collecting the filtered state vectors into the dominant vectors for the document (C.5.19-24 "creation of ... one or more semantic records.").

As per **claim 6**, Carter et al. discloses all of the limitations of claim 5, upon which claim 6 depends. Carter et al. further discloses:

extracting words includes extracting words from the entire document (C.3.lines 49-51).

As per **claim 7**, Carter et al. discloses all of the limitations of claim 5, upon which claim 7 depends. Carter et al. further discloses:

filtering the state vectors includes selecting the state vectors that occur with highest frequencies (C.5.lines 20, 21).

As per **claim 9**, Carter et al. discloses all of the limitations of claim 5, upon which claim 9 depends. Carter et al. further discloses:

forming a semantic abstract (record) comprising the dominant vectors (C.5.lines 22-24 "creation of ...semantic record" that occurs after the filtering).

As per **claim 11 and 16**, Carter et al. discloses a method for determining a semantic abstract in a topological vector space for a semantic content of a document on a computer system, the method comprising:

storing the document in a computer memory accessible by the computer system (C.2.lines 64-67, C.3.9-14, storing the data/content stream);

determining dominant phrase vectors for the document (C.5.lines 16, 17 the initial "instantiation" of profiles);

determining dominant vectors for the document (C.5.lines 19-24 "semantic records" after meeting the qualifying criteria");

generating the semantic abstract using the dominant phrase vectors and the dominant vectors (C.5.lines 20-24 "creation of ... semantic records").

As per **claim 12**, Carter et al. discloses all of the limitations of claim 11, upon which claim 12 depends. Carter et al. further discloses:

generating the semantic abstract includes reducing the dominant phrase vectors based on the dominant vectors (C.5.lines 19-21 "additionally store a frequency threshold of tokens" which reduces the dominant phrase vectors as they are combined with the dominant vectors making the reduction based on the dominant vectors, C.5.lines 22- 24 "creation of ... semantic records" for the generation of the abstract).

As per **claim 13**, Carter et al. discloses all of the limitations of claim 11, upon which claim 13 depends. Carter et al further discloses:

generating the semantic abstract includes reducing the dominant vectors based on the dominant phrase vectors (C.5.lines 19-21 “additionally store a frequency threshold of tokens” which reduces the dominant vectors as they are combined with the dominant phrase vectors making the reduction based on the dominant phrase vectors, C.5.lines 22- 24 “creation of ... semantic records” for the generation of the abstract).

As per **claim 15**, Carter et al discloses all of the limitations of claim 11, upon which claim 15 depends. Carter et al. further discloses:

identifying the lexemes or lexeme phrases corresponding to state vectors in the semantic abstract (C.5.lines 11-13 “profile defines a semantic concept” tokens are lexemic and make up the profile).

As per **claim 25**, Carter et al. discloses a method determine a semantic abstract in a topological vector space for a semantic content of a document stored on the computer system, the method comprising:

extracting phrases from the document (C.4.lines 48, 49);
constructing at least one state vector (C.6.line 36) in the topological vector space (C.4.lines 4-6) for each phrase extracted by the phrase extractor (C.5.lines 38-42); and
collecting the state vectors into the semantic abstract for the document (C.5.lines 42-45).

It is inherent to embody the method in an apparatus.

As per **claim 26**, Carter et al. discloses all of the limitations of claim 25, upon which claim 26 depends. Carter et al. further discloses:

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filtering the state vectors to reduce the size of the semantic abstract (C.5.lines 19-24 “qualifying criteria for the creation of” the semantic records).

It is inherent to embody the method in an apparatus.

As per **claim 27**, Carter et al. discloses all of the limitations of claim 25, upon which claim 27 depends. Carter et al. further discloses:

constructing a state vector for each word in the document (C.3.lines 41-43 “...a word, a sentence, or the entirety of the text.”, C.5.lines 38-42).

It is inherent to embody the method in an apparatus.

As per **claim 29**, Carter et al. discloses a method for determining a semantic abstract in a topological vector space for a semantic content of a document on a computer system, the method comprising:

extracting dominant phrases from the document using a phrase extractor (C.4.lines 57, 58), the dominant phrases representing a condensed content for the document (C.3.lines 59-61, 66, 67);

constructing at least one first state vector (C.6.line 36) in the topological vector space (C.6.lines 34-36) for each dominant phrase using a dictionary and a basis (C.6.lines 46-50);

collecting the first state vectors into dominant phrase vectors for the document (C.5.lines 16, 17);

extracting words from at least a portion of the document (C.4.lines 48, 49);;

constructing a second state vector in the topological vector space for each word using the dictionary and the basis (C.6.lines 46-50);

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filtering the second state vectors (C.5.lines 21, 22);
collecting the filtered second state vectors into dominant vectors for the
document (C.5.lines 19-22); and
generating the semantic abstract using the dominant phrase vectors and the
dominant vectors (C.5.lines 22-24).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 8, 19, 20, 21, 23, 24 are rejected under 35 U.S.C. 103(a) as being
unpatentable over Carter et al. in view of Hazlehurst et al. (U.S. Patent No. 6,289,353
filed Jun. 10, 1999).

Carter et al. and Hazlehurst et al. are analogous art because they are both of
the semantic textual information retrieval field.

As per **claim 8**, Carter et al. discloses all of the limitations of claim 5, upon which
claim 8 depends. Carter et al further discloses:

filtering the state vectors includes a centroid (C.5.lines 38-43 "tend to clump
together in the TVS") in the TVS for the state vectors

Carter et al. does not disclose:

calculating a centroid.

selecting the state vectors nearest the centroid.

However, as it is well known in the art, Hazlehurst et al. teaches calculating a centroid space (C.11.lines 64-67) and selecting the state vectors (document vector) nearest the centroid (Fig. 10A item 134B, the closest documents are selected and listed, C.13.lines 11-14). Therefore it would have been obvious to one ordinarily skilled in the art to combine Carter et al. and Hazlehurst et al. The motivation for doing so would have been to identify the centroidal space and select a semantic equivalent or closely related vector or document vector nearest the central idea (centroidal space) for relevant semantic retrieval.

As per **claim 19**, Carter et al. discloses all of the limitations of claim 17, upon which claim 19 depends.

Carter et al. does not disclose:

determining a centroid vector in the topological vector space for each semantic abstract.

However, as it is well known in the art, Hazlehurst et al. teaches having centroid vectors for each central concept (semantic abstract). Therefore it would have been obvious to combine Carter et al. with Hazlehurst et al. The motivation for doing so would have been to centralize each concept/abstract in a centroidal space in order to efficiently retrieve semantically related documents that are within a specified area or distance from the centroid.

As per **claim 20**, Carter et al. and Hazlehurst et al. disclose all of the limitations of claim 19, upon which claim 20 depends.

Carter et al. does not disclose:

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measuring a distance further includes measuring an angle between the centroid vectors.

However, as it is well known in the art, Hazlehurst teaches measuring the distance between any two vectors can be done by the cosine function (C.12.lines 14-18). Therefore it would have been obvious to one ordinarily skilled in the art to combine Carter et al. with Hazlehurst et al. The motivation for doing so would have been to refine the distance measurement to a number using a very well known method of angle measurement in order to determine an exact measurement of distance between centroidal spaces.

As per **claim 21**, Carter et al. and Hazlehurst et al. disclose all of the limitations of claim 19, upon which claim 21 depends. Carter et al. further discloses:

measuring a Euclidean distance between vectors (Latent Semantic Indexing is an Optimal Special Case of Multidimensional Scaling, p.3 paragraph 2, being incorporated by reference by Carter et al., C.5.lines 46-49).

As per **claim 23**, Carter et al. discloses a method for locating a second document on a computer with a semantic content similar to a first document, the method comprising:

determining a semantic abstract for the first document (C.5.lines 42-44);
a second document (C.5.lines 51-53-to one ordinarily skilled in the art, the variance of the content stream can be interpreted as a second document).
determining a semantic abstract for the second document (C.5.lines 51-53);

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measuring a distance between the semantic abstracts for the first and second documents (C.6.lines 40-43).

classifying how closely related the first and second documents are using the distance (C.6.line 42 classified as "near or far" using the distance).

Carter et al. does not disclose;

if the second document is classified as having a semantic content similar to the semantic content of the first document, selecting the second document.

However, as it is well known in the art, Hazlehurst et al. teaches selecting the semantically related document (C.13.lines 57-61). Therefore it would have been obvious to one ordinarily skilled in the art to combine Carter et al. with Hazlehurst et al. The motivation would have been to select a document that was semantically related to another document by content which would enable relevant retrieval or selection.

As per **claim 24**, Carter et al. and Hazlehurst et al. disclose all of the limitations of claim 23, upon which claim 24 depends.

Carter et al. does not disclose:

if the document is classified as not having a semantic content similar to the content of the first document, rejecting the second document.

However, as it is well known in the art, Hazlehurst et al. teaches of acquiring documents entailing specific conceptual content and discarding unpopular content (C.14.lines 8-12). Therefore it would have been obvious to combine Carter et al. with Hazlehurst et al. The motivation for doing so would have been to discard the

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documents that didn't relate well to the semantic similarities necessary for desired selection.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carter et al. in view of Arai et al. (U.S. Patent No. 6,173,261 filed Dec. 21, 1998).

As per **claim 14**, Carter et al. discloses all of the limitations of claim 11, upon which claim 14 depends.

Carter et al. does not disclose:

obtaining a probability distribution function for a reduced set of the dominant phrase vectors similar to a probability distribution function for the dominant phrase vectors.

However, as it is well known in the art, Arai et al. teaches having a probability distribution function for phrases (C.2.lines 24-30). Therefore it would have been obvious to one ordinarily skilled in the art to combine Carter et al. with Arai et al. The motivation for doing so would have been to measure the similarity between the phrase vectors as it is possible to do so with the determination of the probability distributions of the phrases .

7. Claims 17, 22, 28, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carter et al.

As per **claim 17 and 22**, Carter et al. discloses:

determining the semantic abstracts for the first (C.5.lines 42-44) and second document (C.5.lines 51-53 "new semantic records", to one of ordinary skill, the variance of the content stream can be interpreted as a second document).

measuring a distance between the semantic abstracts (C.6.lines 40-42); and

classifying how closely related the first and second documents are using the distance (C.6.line 42 classified as "near or far" using the distance).

As per **claim 28**, Carter et al. discloses method to compare the semantic content of first and second documents on a computer system, the method comprising:

first and second semantic abstracts for the first and second documents (C.5.lines 42-44, C.5.lines 51-53-it would be obvious to one ordinarily skilled in the art that the variance of the content stream can be interpreted as a second document, C.5.lines 51-53), respectively, stored on the computer system (C.2.lines 64-67, C.3.lines 9-14, storing the data/content stream) and represented as sets of vectors in a topological vector space (C.5.lines 42-44);

measuring the distance between the first and second semantic abstracts (C.6.lines 40-42); and

a classification scale to determine how closely related the first and second documents are based on the distance between the first and second semantic abstracts (C.6.lines 40-42).

It is inherent to embody the method in an apparatus.

As per **claim 30**, Carter et al. discloses all of the limitations of claim 29, upon which claim 30 depends. Carter et al. further discloses:

comparing the semantic abstract with a second semantic abstract for a second document (C.5.lines 51-53) it would be obvious to one of the ordinary skill to interpret the content variance of the content stream as a second document) to determine how closely related the contents of the document are (C.6.lines 33,34, 40-42).

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carter et al. in view Jensen et al. (U.S. Patent No. 6,459,809 filed Jul. 12, 1999).

Carter et al. and Jensen et al. are analogous art in that they are both of the semantic language information retrieval field.

As per **claim 18**, Carter et al. discloses all of the limitations of claim 17, upon which claim 18 depends.

Carter et al. does not disclose:

measuring a Hausdorff distance between the semantic abstracts.

However as it is well known in the art, Jensen et al. teaches how to determine the closeness of two or more entities (abstracts or records) are in a space (C.5.lines 36-38). Jensen et al. further teaches of using a Hausdorff distance (C.5.lines 47, 48) to measure the closeness between sets of entities. Therefore it would have been obvious to one of ordinary skill in the art to combine Carter et al. with Jensen et al. The motivation for doing so would have been to determine how close two entities were in accordance with one another in a set space, using the Hausdorff distance specializes in determining the nearness which in turn would allow one to have an idea of how close the abstracts would be.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Cooper (U.S. Patent No. 6,009,418 Dec. 28, 1999) teaches using the Hausdorff dimension as a useful method of measurement.

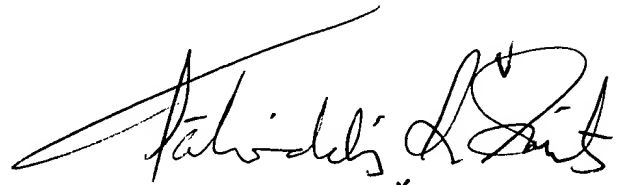
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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lamont M Spooner whose telephone number is 703/305-8661. The examiner can normally be reached on 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Smits can be reached on 703/306-3011. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703/305-3900.

lms
12/31/03



TĀLIVALDIS IVARS ŠMITS
PRIMARY EXAMINER